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ABSTRACT

Students who take developmental psychology courses have difficulty applying theoretical concepts to situations separate from the context of theory. When learning about Piagetian theory, students often confine their understanding to demonstrations of conservation tasks. Analyzing Card Games, an active learning activity, allows students to apply the stages of Piaget's theory of cognitive development to common card games. Students favorably rated this active learning exercise, indicating that the exercise deepened understanding of the concepts. (Author)

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ED 481 012

Dealing with Piaget: Analyzing Card Games for Understanding Concepts

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Abstract

Students who take developmental psychology courses often have difficulty applying theoretical concepts to situations separate from the context of the theory. When learning about Piagetian theory, students often confine their understanding to demonstrations of conservation tasks. Analyzing Card Games, an active learning activity, allows students to apply the stages of Piaget's theory of cognitive development to common card games. Students favorably rated this active learning exercise, indicating that the exercise deepened understanding of the concepts.

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Dealing with Piaget: Analyzing Card Games for Understanding Concepts

In developmental psychology, students are confronted with learning many stage theories but often have difficulty keeping them straight and remembering the stages in order (Mann & Carney, 1996). When it comes to applying class material, some students struggle with the transformation of the concepts of developmental theories to real world situations. Consequently, the effective instructor creates or provides opportunities for applications of theory.

Understanding Piaget's theories is often problematic for university students. Students confuse his concepts and terminology of assimilation and accommodation. Students also overly focus on the descriptions or demonstrations of Piagetian tasks to understand his stages (Holbrook, 1992). For example, students can describe how conservation is demonstrated using liquids and containers of various widths and heights but have a more difficult time when it comes to creating an elementary school classroom example.

Neysmith-Roy (1994) created a Make a Toy project as a means for students to apply concepts of child development to a real situation. Students were instructed to manufacture a toy suitable for newborns to 4 year-old-children, keeping in mind the physical, cognitive, linguistic, social development, and safety issues of the children. Students rated the making of the toy favorably but Neysmith-Roy does not provide an evaluation of how the project affected learning or understanding of the course content. In fact, she notes, "a few students spent too much time constructing the toy and not enough analyzing the theory behind it" (p. 103). Nigro (1994) similarly offers an idea of creating a children's game in a developmental psychology class. Students were to create a new game for children, to include what they had learned in developmental psychology, and to advocate why children would like the game. Again, students

rated the activity very favorably. Nigro further described that students' projects were developmentally appropriate, took into consideration the whole child, and were much more active than commercially produced products. Yet, there is no discussion of how the project contributed to understanding the concepts.

Students are more likely to internalize and remember material when they are actively engaged in the learning process (Bonwell & Sutherland, 1996). Students enjoy learning more and can acquire better understanding. Corbeil (1999) specifically advocates for the use of games, namely children's games, as a means for improving learning in higher education. Neysmith-Roy (1994) and Nigro (1994) both have students create items that incorporate developmental theory. However, in order to create the items, students must know the theory adequately to incorporate the tenets of the theory into the product. If a student fails to understand the theory, the outcome of the projects in both exercises is seriously compromised. Instead, I have developed an exercise where students apply their understanding of theory to existing games. Students use what they know about Piaget's theory of cognitive development to analyze common playing card games. Students discuss and classify the different card games into being appropriate for children at the various stages of Piaget's theories of cognitive development. It is theorized that the active learning exercise, Analyzing Card Games, will be effective for student learning.

Method

Sample

Thirty-one students (23 females, 8 males) from three sections of a course in Child Development at a small California State University participated in this study. Students who failed to attend when the activity was conducted in class were eliminated from the sample.

Procedure

Following the class session on a discussion of Piaget's theories, students completed an exercise entitled, "Analyzing Card Games." I instructed the students that they were to analyze common card games using a worksheet to indicate what stage the card game would be appropriate for and to provide a rationale behind their reasoning. The card games listed were Blackjack, Crazy Eights, Canasta, Go fish, I Doubt it!, Kings' Corners, Old Maid, Hearts, Rummy, Spit/Speed, and War. Students received rules of all the card games (Basic Blackjack, n.d.; MacLeod, 2002) for reference, and could use playing cards to play the games for better understanding, if desired.

Measures

After an in-class quiz on Piagetian theory, students filled out a measure designed to assess the utility of the Analyzing Card Games exercise. The attitudinal measure is a 25 item, Likert scale (1 = Not at all to 5 = Very much) asking about self-reported understanding of the theory, the sensorimotor stage, the preoperational stage, the concrete operational stage, the formal operational stage, the concepts of assimilation and accommodation, the concept of centration, the concept of reversibility, the concept of conservation and ability to apply the theory from the Analyzing Card Games exercise. In addition, I asked if the Analyzing Card Games exercise was enjoyable, should it be used in the future, had the students learned more than if they had not participated or were absent, and whether it was a waste of time. Cronbach's alpha for this measure was .91.

Results

Students rated the Analyzing Card Games exercise favorably. Using a five point, Likert scale (1 = Not at all, 2 = a little, 3 = somewhat, 4 = a lot, and 5 = very much), on the item about

how enjoyable was the Analyzing card games exercise, the mean score was 3.91 (SD = 1.16). The responses to "Should the instructor use this exercise again in future semesters?" had a mean of 4.00 (SD = 1.17). The mean was 3.74 (SD = 1.29) for the item, "Did you learn more about Piaget's theory by participating in this exercise if you had not participated or were absent?" Students also rated the exercise low on being a waste of time (M = 1.48, SD = 0.99).

Discussion

Active learning strategies are equally as effective to meet learning outcomes, if not more so, as traditional lecture formats (Bonwell & Sutherland, 1996). Yet, active learning must be planned and planful to align with learning outcomes for students. In this study, the ultimate goal was for students to understand Piagetian theory. The students self-reported that the exercise helped them understand Piaget's developmental stages more than the conceptual components of those stages. They generally found the task enjoyable and found it worthwhile.

Although the sample size is small for this study, the results indicate that the exercise was successful. However, students may need more direction to understand the conceptual pieces of Piagetian theory. They may need more prompting to analyze the card games not just for the stage but also for the skills involved. For example, students might indicate that blackjack would be appropriate for children at the concrete operational stage and requires them to decenter because the ace can be one or 11. Students suggested informally that other children's games such as hopscotch or tic-tac-toe could also be analyzed using Piagetian concepts. To expand these ideas, commercially produced games could also be brought in to the class for analysis.

Analyzing Card Games gives students an authentic task to understand Piagetian theory. Students' familiarity with card games provides an avenue for understanding why certain games appeal to children in specific age groups and, more importantly, how children think.

Table 1

Mean scores evaluating Analyzing Card Games exercise

How much did the exercise help you understand…	*M*	*SD*
Piagetian theory	3.45	1.15
sensorimotor stage	2.77	1.30
preoperational stage	3.52	1.02
concrete operational stage	3.60	.97
formal operational stage	3.53	.97
the concepts of assimilation and accommodation	2.66	1.17
the concept of centration	2.66	1.08
the concept of reversibility	3.14	1.21
the concept of conservation	2.39	1.07

1 = not at all, 2 = a little, 3 = somewhat, 4 = a lot, 5 = very much

Table 2

Means and standard deviations of Analyzing Card Games and attitudinal items

	M	*SD*
How enjoyable was the Analyzing Card Games exercise?	3.91	1.16
Should the instructor use this exercise again in future semesters?	4.00	1.17
Did you learn more about Piaget's theory by participating in this exercise than if you had not participated or were absent?	3.74	1.29
How much did you learn about applying the theory?	3.37	1.10
Do you think the exercise on Analyzing Card Games was a waste of time?	1.48	.99

1 = not at all, 2 = a little, 3 = somewhat, 4 = a lot, 5 = very much

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ANALYZING CARD GAMES

CARD GAME	STAGE?	RATIONALE
BLACKJACK		
CRAZY EIGHTS		
CANASTA		
GO FISH		
I DOUBT IT!		
KINGS CORNERS		

OLD MAID		
HEARTS		
RUMMY		
SPIT/SPEED		
WAR		

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